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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,951

08/18/2003

Richard E. Fontaine

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4153

26178

7590

09/30/2008

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EXAMINER

NGUYEN, LAM S

ART UNIT

PAPER NUMBER

2853

NOTIFICATION DATE

DELIVERY MODE

09/30/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/642,951	<b>Applicant(s)</b> FONTAINE ET AL.	
	<b>Examiner</b> LAM S. NGUYEN	<b>Art Unit</b> 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 36-70 is/are pending in the application.
- 4a) Of the above claim(s) 36-52 and 58-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 53-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/17/2008 has been entered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 53-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakata et al. (US 6276772) in view of Takamura et al. (US 2002/0033644).

**Regarding to claim 53:**

Sakata et al. discloses an apparatus comprising:

droplet ejection devices (*FIG. 1-2*) each comprising an element (*FIG. 1-2, element 1*) to change a volume of a fluid chamber (*FIG. 1-2, elements 3 and 6*) of one of the droplet ejection devices, the element having an electrical capacitance (*FIG. 5*); and

control circuitry to effect uniform velocities of droplets ejected from at least two different ones of the droplet ejection devices by providing respective charge voltages or charge

Art Unit: 2853

currents to the volume changing elements to individually control a charge on each volume changing element (*Abstract*).

Sakata et al. however does not teach wherein droplet ejection device being associated with a plurality of charging resistors and the control circuitry provides the respective charge voltage or charge current by selecting a first charging resistor associated with the droplet ejection device to charge the electrical capacitance at a first rate followed by selecting a second charging resistor associated with the droplet ejection device to charge the electrical capacitance at a second rate before discharging the electrical capacitance.

Takamura et al. discloses an apparatus including a droplet ejection device (*FIG. 2*) being associated with a plurality of charging resistors (*Abstract and FIG. 11, elements 92-93: The resistors are impedances of transistors 92-93*), and a control circuitry provides the respective charge voltage or charge current by selecting a first charging resistor associated with the droplet ejection device to charge an electrical capacitance (*FIG. 11, element 91*) at a first rate followed by selecting a second charging resistor associated with the droplet ejection device to charge the electrical capacitance at a second rate before discharging the electrical capacitance (*FIG. 12d and 12f*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify Sakata's driving circuitry to include a plurality of resistors associated with an ejection device for charging the electrical capacitance at different rates as disclosed by Takamura et al. The motivation for doing so would have been to suppress the peak

Art Unit: 2853

value of the induced voltage occurring in an electrode of the electrical capacitance when charging and discharging as taught by Takamura et al. (*paragraph [0018]*).

- **Sakata et al. also discloses the following claimed invention:**

**Regarding to claim 54:** wherein the control circuitry effects uniform droplet velocities also by providing respective discharge voltages or discharge currents to the volume changing elements (*FIG. 8a-b, 15a-b*).

**Regarding to claim 55:** wherein the control circuitry comprises discharging control switches (*FIG. 3, element Tr2b*) to connect or disconnect discharge voltages or discharge currents to respective elements to discharge the respective electrical capacitances (*FIG. 3, element 1a*).

**Regarding to claim 56:** wherein the control circuitry comprises charging control switches (*FIG. 3, element Tr1*) to connect or disconnect charge voltages or charge currents to respective elements through a respective charging resistor to charge the respective electrical capacitances (*FIG. 3, element 1a*).

**Regarding to claim 57:** wherein the volume changing element comprises an electrically actuated displacement device (*FIG. 2, element 1*).

### ***Response to Arguments***

Applicant's arguments with respect to claims 53-57 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Art Unit: 2853

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LAM S NGUYEN/  
Primary Examiner, Art Unit 2853